



## XMPP Instant Messaging Evaluation Guide

*Quick setup of Isode's XMPP Server, M-Link.*

## Objectives

This document is intended for those beginning an evaluation of Isode's XMPP Server product, M-Link. During this evaluation we will:

- Set up an XMPP Service (headquarters.net) on a single-node for 1:1 chat
- Set up a Multi-User Chat (MUC) domain for headquarters.net and create a permanent MUC room.
- Set 1:1 and Multi-User Chat Archive Locations
- Create a number of users for the XMPP service and test 1:1 & MUC with those users and the Swift XMPP Client.
- Add a Security Policy to your XMPP Service

We'll be using 2 Isode server products, M-Link (to provide the XMPP service) and M-Vault (an LDAP Directory to hold user account information). For the purposes of this evaluation guide we have assumed that this is a 'clean' installation of both M-Vault and M-Link R16.3. Please do not 'Mix and Match' M-Vault and M-Link Versions. If you're installing R16.3 M-Link, make sure that M-Vault is also R16.3 and not an earlier version. You'll interact with M-Link and M-Vault using:

- **M-Link Console (MLC):** a GUI management tool that enables configuration and management of an M-Link system.
- **Swift:** An open source multi-platform XMPP client.

### Note for Windows Users

If you're running Windows 7, 8 or 10 you will need to run Isode Management tools (like Sodium and MVC) as an Administrator. You can do this by right-clicking on the program icons and choosing 'Run as administrator' from the pop-up

## Installation Requirements

You should visit [[www.isode.com/products/supported-platforms.html](http://www.isode.com/products/supported-platforms.html)] to discover which operating systems are supported for Isode evaluations. Evaluation downloads (excluding documentation) are held in a password-protected section of the Isode website. If you have not already done so you should apply for password access by filling in the form located at [[www.isode.com/evaluate/evalrequest.html](http://www.isode.com/evaluate/evalrequest.html)].

## Obtain Isode Server Products

Many Isode management tools are written in Java. You should install Java before installing the Isode packages, on Linux platforms you will need to add Java to the \$PATH. You can obtain the required packages (Java SE 8 - JRE) from [[www.oracle.com/technetwork/java/javase/downloads/index.html](http://www.oracle.com/technetwork/java/javase/downloads/index.html)].

After obtaining password access to the Isode binary files you should download and install M-Vault and M-Link, following the instructions on the download page for your platform. The number of packages required will vary depending on platform. Available server downloads are listed at [[www.isode.com/evaluate/instant-messaging-xmpp.html](http://www.isode.com/evaluate/instant-messaging-xmpp.html)].

### Note for Linux Users

On Linux platforms you should create an M-Link runtime user account 'mbox'. After installation you should change the ownership of the /etc/isode directory to this user.

## Obtain the Swift XMPP Client

Swift for Windows, Linux and Mac OSX can be downloaded from [[www.swift.im](http://www.swift.im)].

## Evaluation License File

Isode server products require a valid license from Isode before they will run correctly. Licenses are issued by Isode Customer Service. If you haven't already been sent a license when requesting access to the evaluation files, please send a message to request a license to [[pre-sales@isode.com](mailto:pre-sales@isode.com)] remembering to specify which Isode server products you need a license file for.

By default the license file you receive needs to be installed in `\Isode\etc\` (Windows) or `/etc/isode/` (Linux) as 'license.dat'. You may have chosen an alternative installation directory when installing the software, in which case you will have to place the license file there. For Linux it is important to ensure that the license file is readable by all users on Linux systems.

## Edit the Hosts File

MLC recognizes real server addresses rather than the 'localhost/machinename' designations you'll be using if you set up this evaluation on your local machine.

You will therefore need to edit your hosts file (found at `/Windows/System32/drivers/etc/hosts` on Windows and `/etc/hosts` on Linux) to include a line that adds a references between the localhost address and the domain name you'll be using for this evaluation. In this document we're using the domain name 'headquarters.net' so your hosts file will need to include the line:

```
| 127.0.0.1 headquarters.net
```

## DNS Settings

Alternatively you can use DNS instead of the Hosts file, to use DNS you will need to set up SRV records within DNS. SRV records are set up for every domain that you host, pointing to every node of the cluster on port 5269, and that for the chat domains you should also have `_xmpp-client._tcp` set up pointing to 5222. If you're running non-standard ports replace 5269 and 5222 as appropriate.

Below is an example:

```
| _xmpp-server._tcp.headquarters.net IN SRV 5 33 5269 xmpp.mydomain.com.  
| _xmpp-client._tcp.headquarters.net IN SRV 5 33 5222 xmpp.mydomain.com.
```

## Creating an XMPP Service

M-Link uses a directory to hold user information. You're going to use Isode's M-Vault product for this purpose, although you could instead use a different LDAP directory. Many deployments use an existing directory infrastructure for account information. MLC will create a new directory for you as part of its setup wizard.

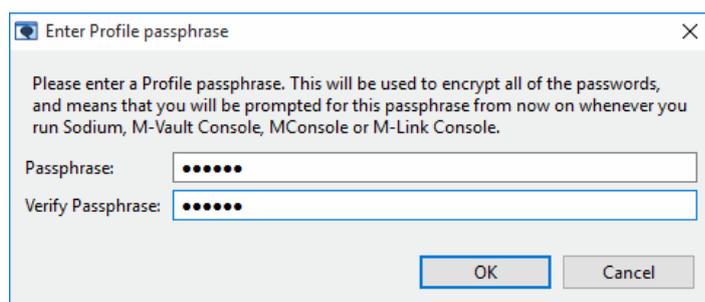
## Starting M-Link Console

In Windows click Start, and from the 'All Programs' menu, select 'Isode 16.3 > 'M-Link Console', using 'Run As Administrator'. In Linux execute the following command as root:

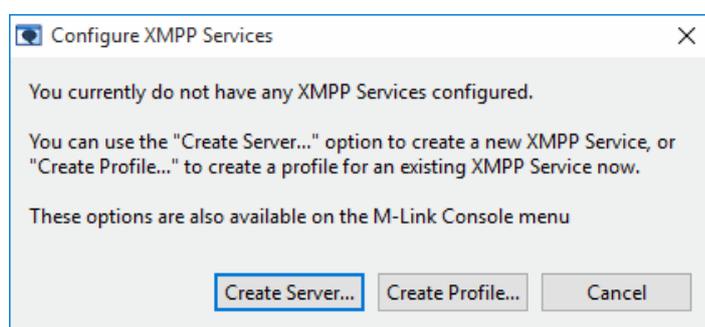
```
| % /opt/isode/bin/mlc
```

## Starting the Wizard

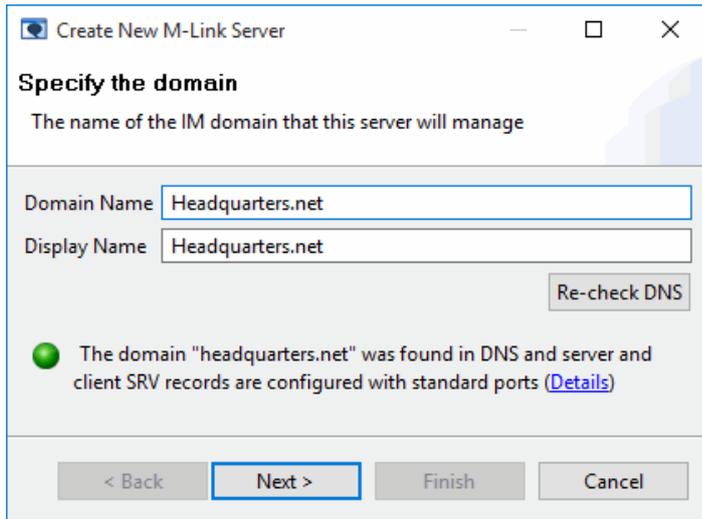
If this is the first time you've any of the Isode management GUI tools, you will not yet have Isode profile settings saved. If this is the case you'll be asked if you wish to encrypt your bind profile (Yes) and then prompted to set and confirm a password for that profile.



If you have already created an Isode bind profile as part of another evaluation, you will be prompted for the passphrase. Once you have created the profile, MLC will launch. If you don't currently have any XMPP services configured, you'll be prompted to create one:



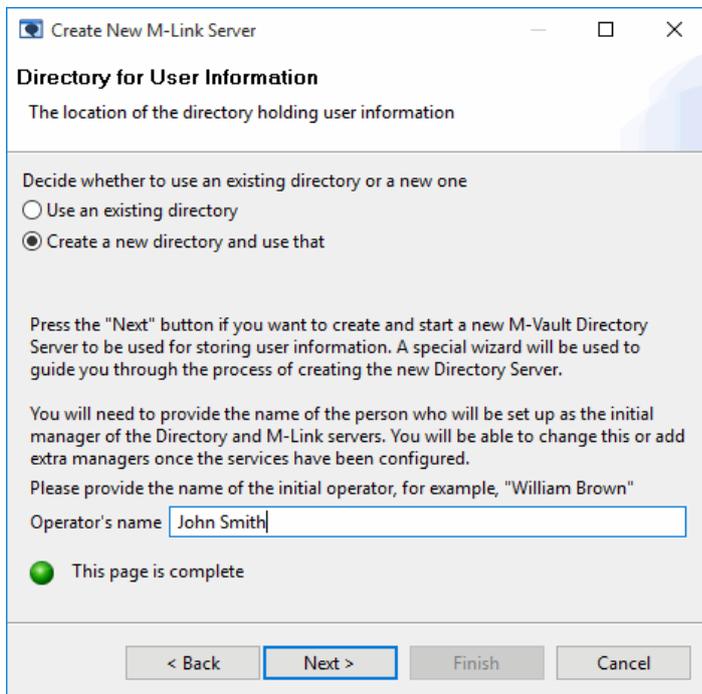
Choose [**Create Server...**] in the next screen specify the Domain Name and Display Name for your IM domain. In this case we're using 'headquarters.net' for both.



Click on **[Next >]** and you'll be prompted for information on the Directory that will be used to hold user information.

## Create a Directory for User Information

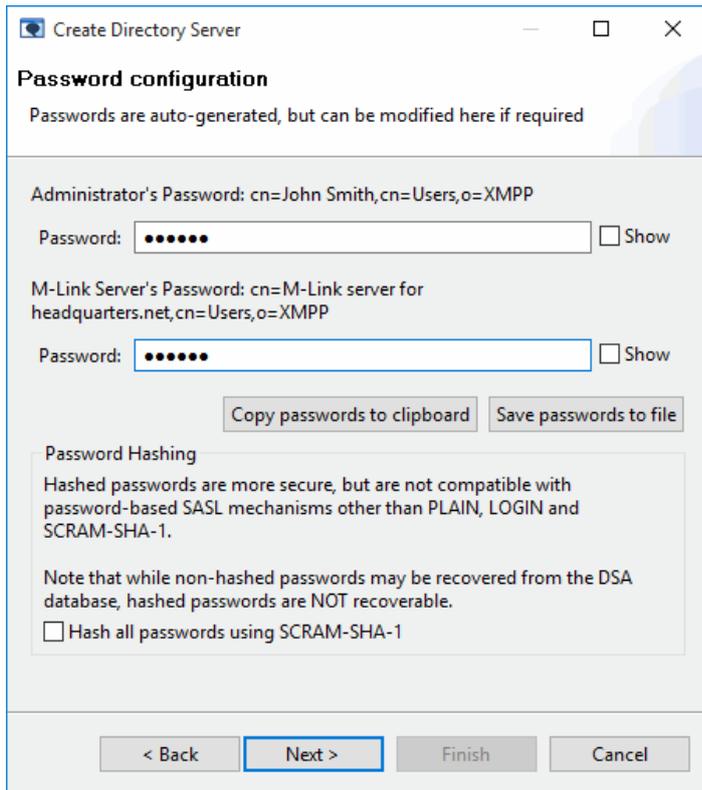
As mentioned earlier M-Link can use an existing directory for user account information but for the purposes of this evaluation we're going to create a new one.



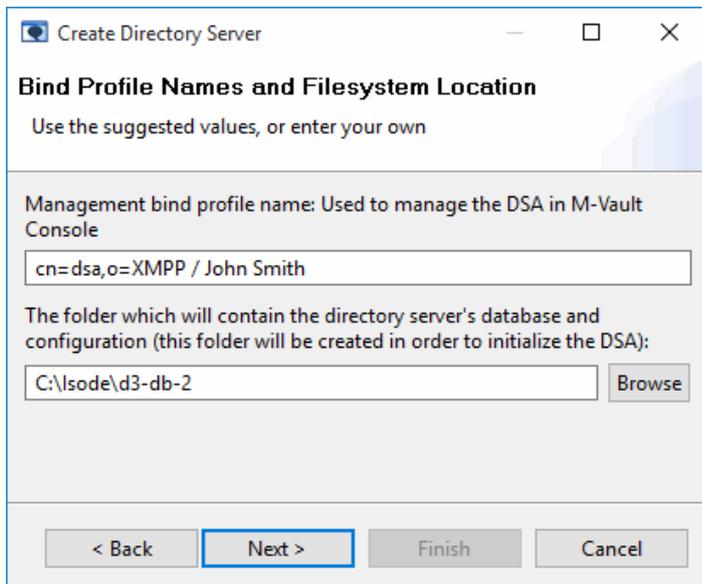
Select the **[Create a new directory and use that]** radio button and fill in a name for the initial operator. Click **[Next >]** to continue. Accept the defaults in the DIT structure configuration screen and click **[Next >]** again.

In the Password configuration screen, Administrator and M-Link Server passwords will be automatically

generated. Either change these to values you'll remember or make a note of the autogenerated ones.



Click on **[Next >]** and MLC will create and display Bind profile name and filesystem location for the Directory. Accept the defaults in the two fields and click **[Next>]**.

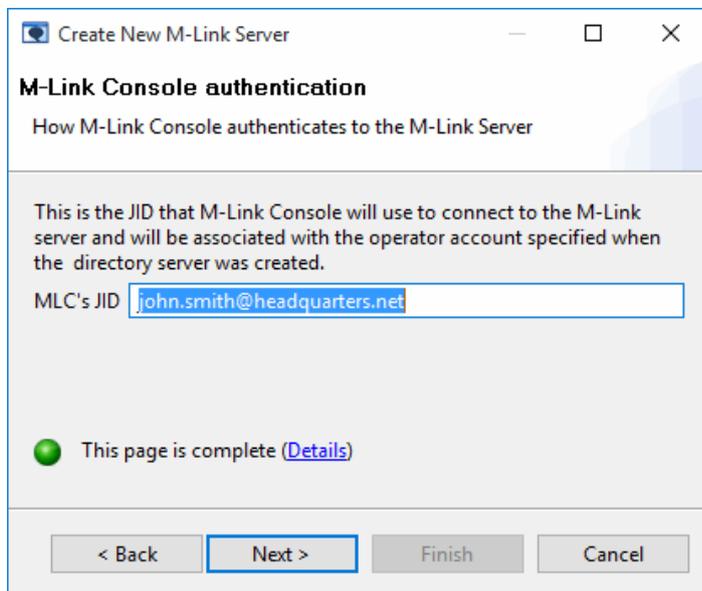


On the next two screens, Address Configuration & Confirm Details, accept the defaults and click **[Finish]** at the end.

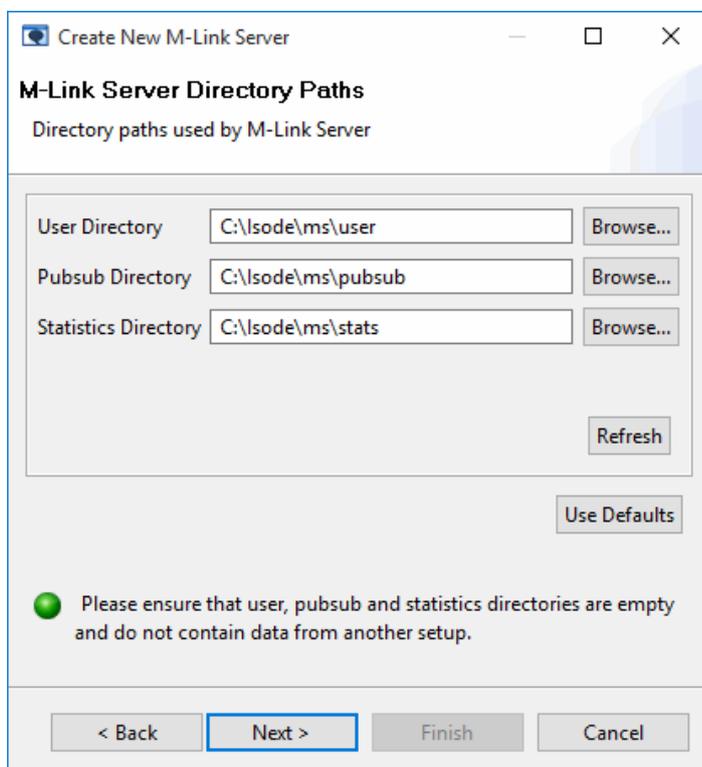
You've now completed the directory creation process. This directory will be used to hold user information for your XMPP service. Click on **[Next >]** to create the M-Link XMPP Server.

## Create a new M-Link Server

MLC is an XMPP client and needs to use an identity to connect to M-Link, as does any XMPP client. By default it will use the identity of the initial operator we set earlier. The first stage in M-Link Server creation will pre-fill that identity, accept this default and click **[Next >]**.



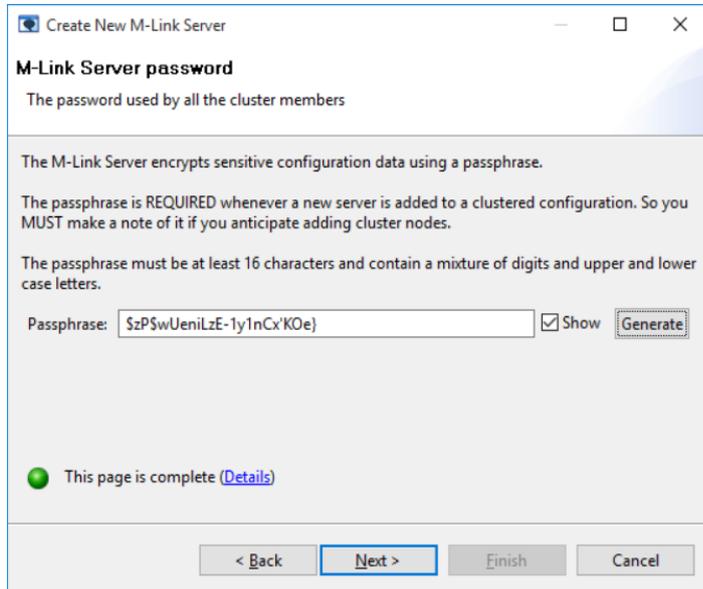
In the following screen you'll be prompted to set locations for User, Pubsub and Statistics data. On Linux installation there is a "Userid" field at the top that autopopulates to the user you are logged in as e.g. mlink



The next two screens deal with settings for the M-Link Archive server. This will be dealt with in a

later guide, for the moment accept the defaults on both screens.

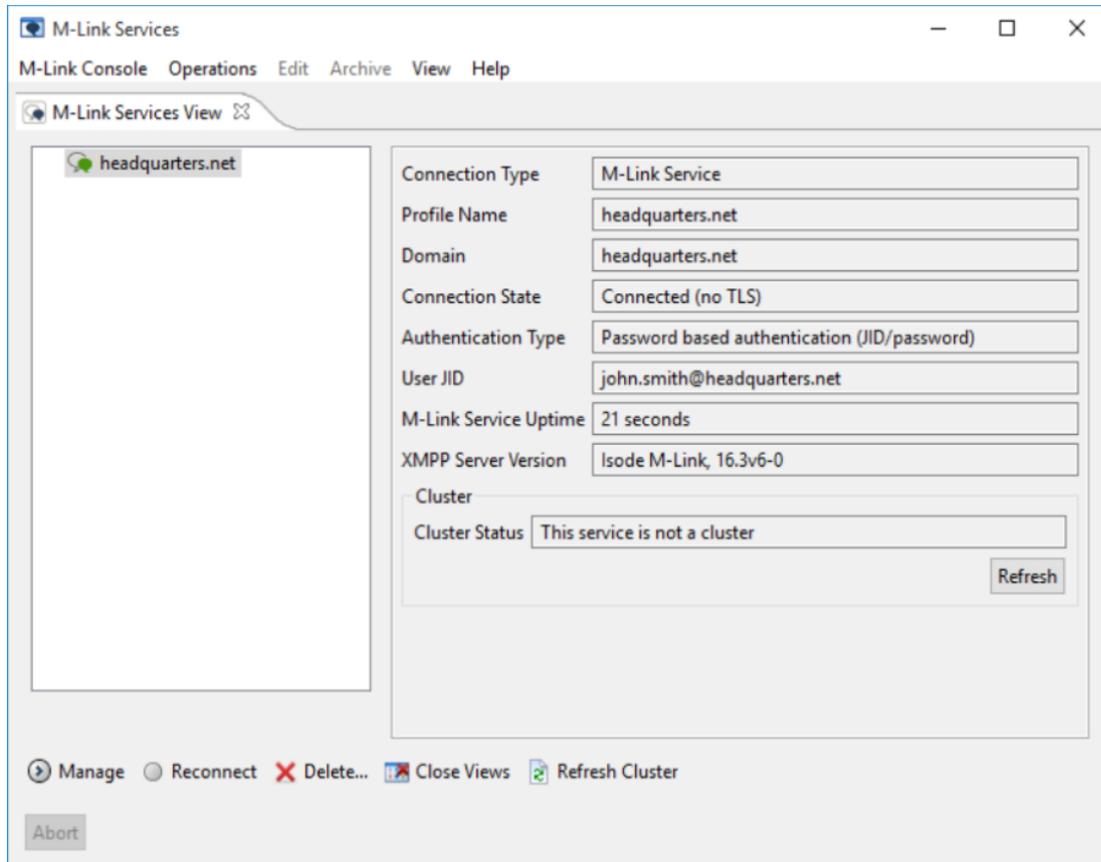
You can accept the defaults for these and click on **[Next >]** to proceed. M-Link encrypts sensitive configuration data using a passphrase, in the next step a random passphrase will be set. It's important that you make a note of this passphrase.



Click on **[Next >]** and the final screen will confirm the configuration you've just created. Click **[Finish]** and MLC will save the configuration and start M-Link.

## Configuring Your XMPP Service

After completing the Wizard process, you'll be dropped back into the main MLC screen and you'll see that your M-Link Service, 'headquarters.net', is now active.

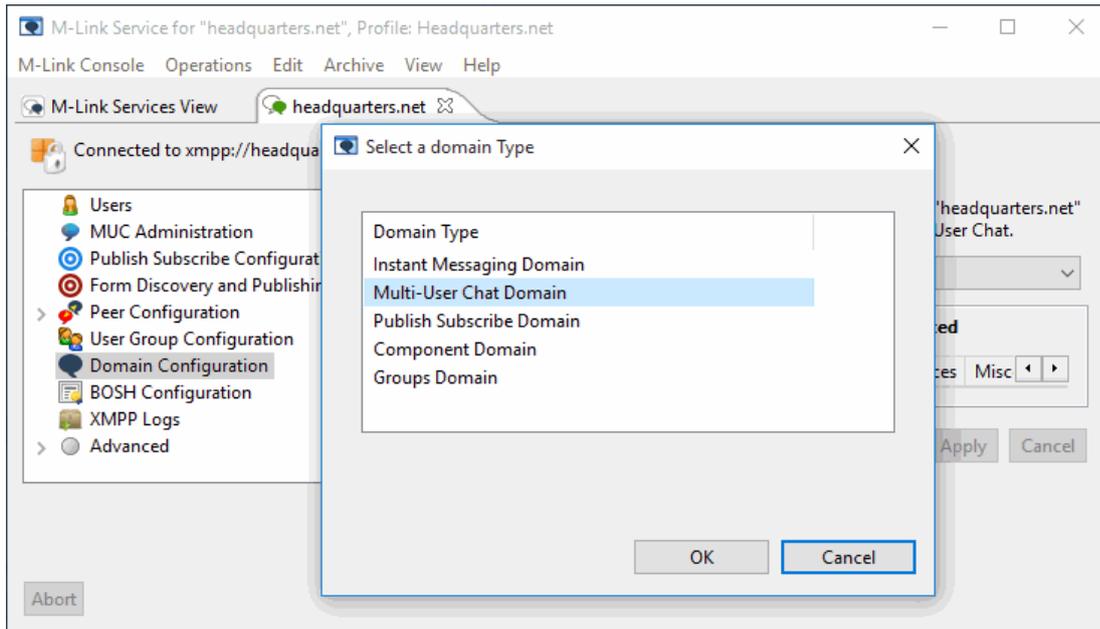


## Adding a Multi-User Chat (MUC) Domain

The XMPP Service we've set up will allow 1:1 instant messaging by default. In order to enable multi-user chat we need to set up a multi-user chat domain within which chat rooms can be created.

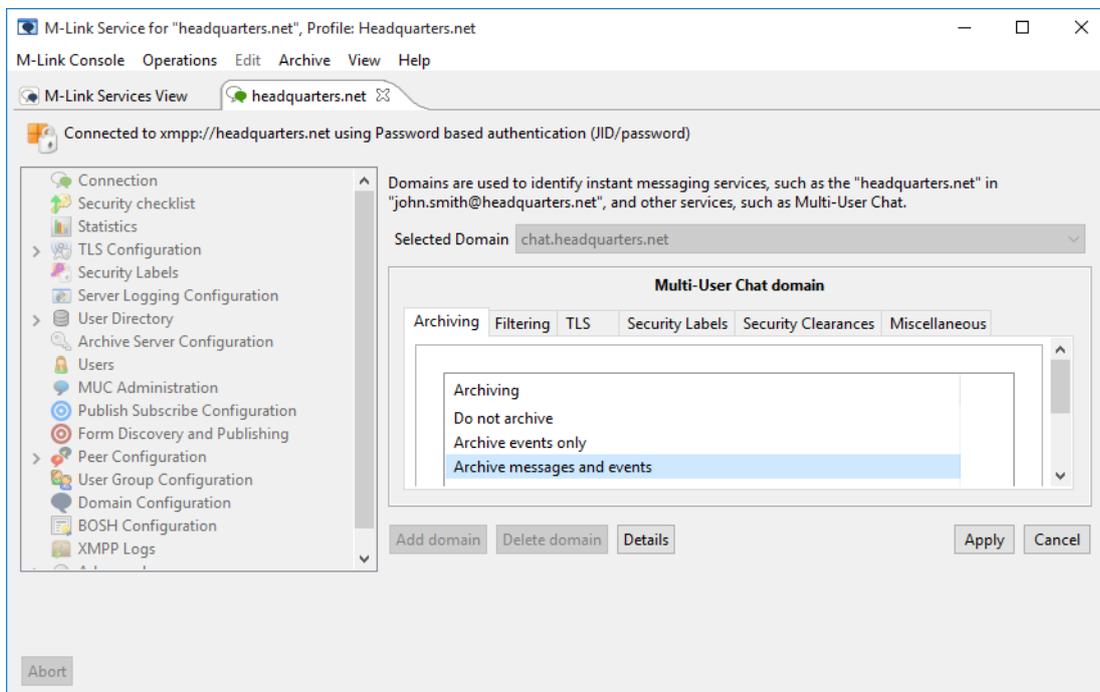
Highlight the XMPP Service, right-click and select **[Manage]** from the menu. You can also use the **[Manage]** menu item at the bottom of the MLC screen to achieve the same effect.

Select **[Domain Configuration]** from the left-hand pane and then click on **[Add domain]**. In the resulting pop-up select 'Multi-User Chat Domain' and click on **[OK]**.

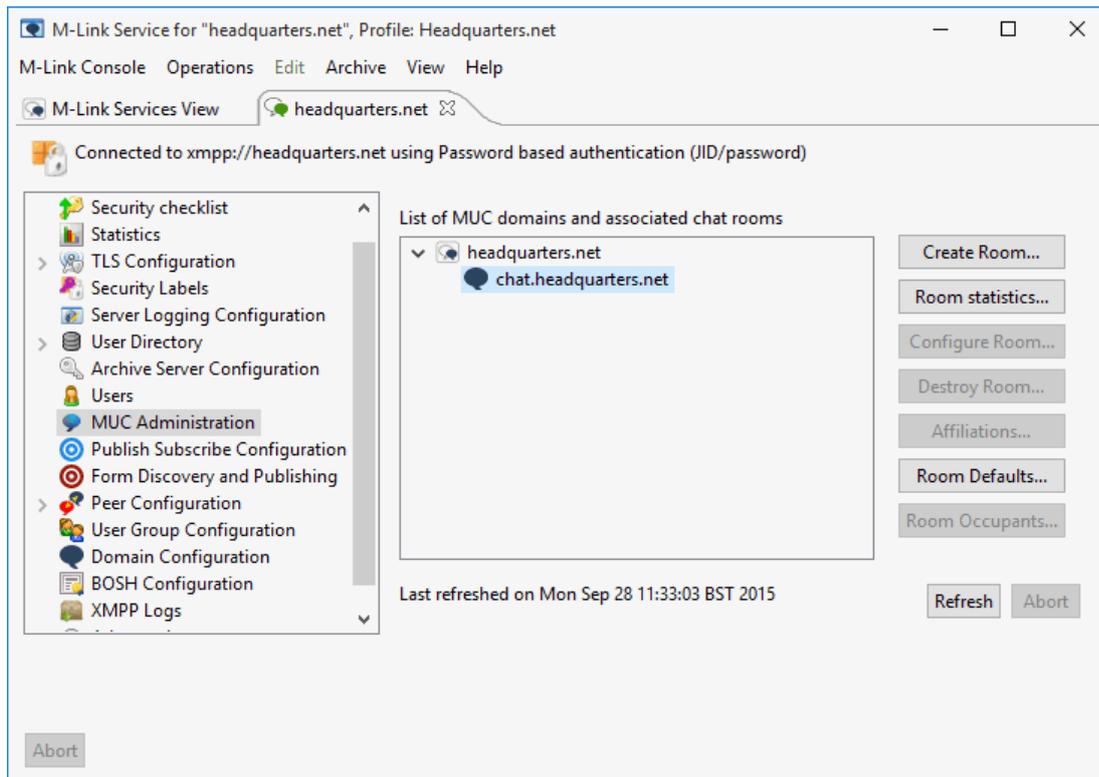


Fill in the Domain Name (chat.headquarters.net) and Parent Domain Name (headquarters.net) and click on [ **OK** ] to confirm the changes.

On the Archiving tab, select [ **Archive messages and events** ], then click on [ **Apply** ] to commit these changes.



Now select [ **MUC Administration** ] from the left pane and you'll now see the MUC domain associated with headquarters.net.

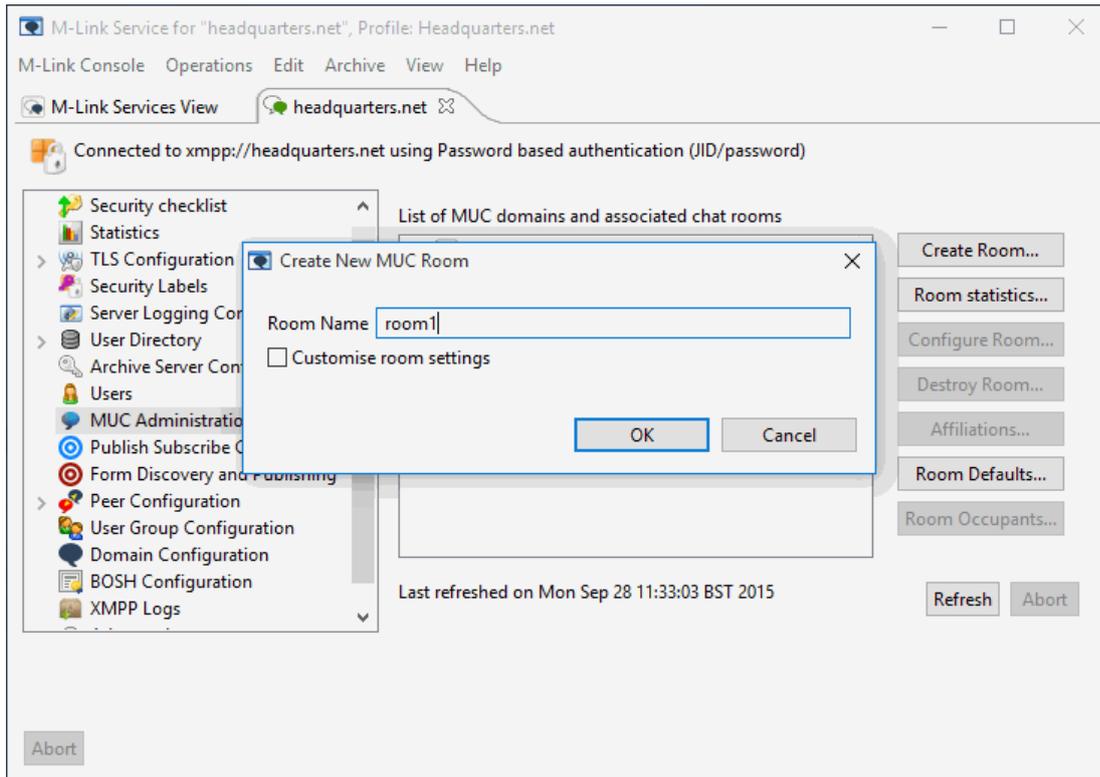


#### Note

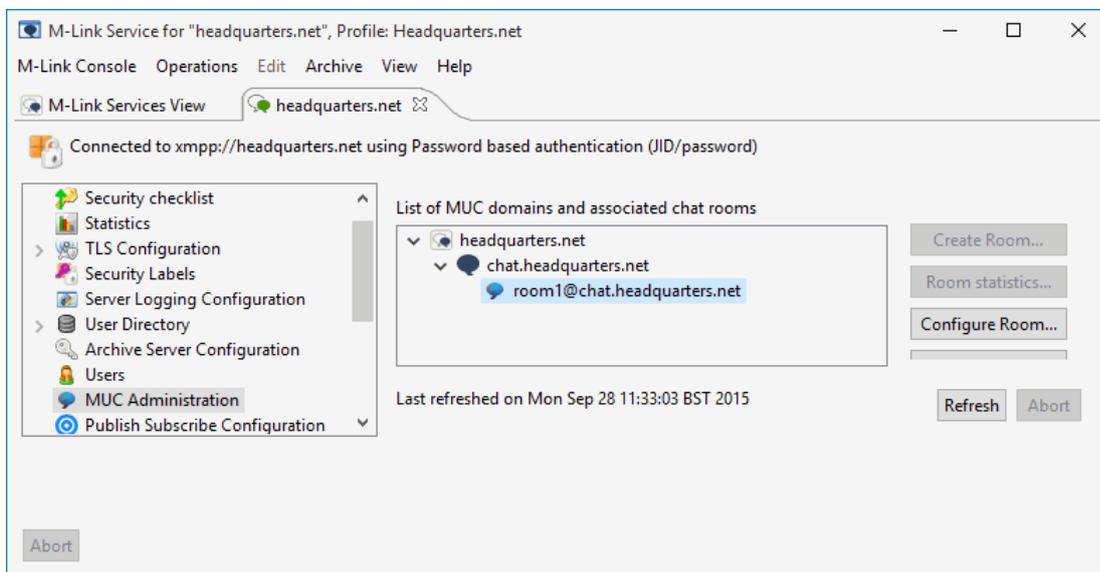
We've created one MUC domain for the `headquarters.net` service however, a service can contain multiple MUC domains. You may for instance wish to create different MUC domains to match requirements of your organization's security policy, with an entire MUC domain reserved for users of a certain security clearance, rather than applying security clearances to individual MUC rooms. See the M-Link Administration Guide for more information on Security Policy.

## Adding a Persistent MUC Room

Now that we've created a MUC domain, the `servicemuc-` can host MUC rooms. We're going to create a single persistent MUC room. This type of room will persist through server re-starts. Highlight the `'chat.headquarters.net'` domain and click on the **[Create Room...]** button. Give the room a name but at this stage don't apply a password or customize the room settings.



Click on **[OK]**. After the confirmation message the new room will appear in the administration screen.

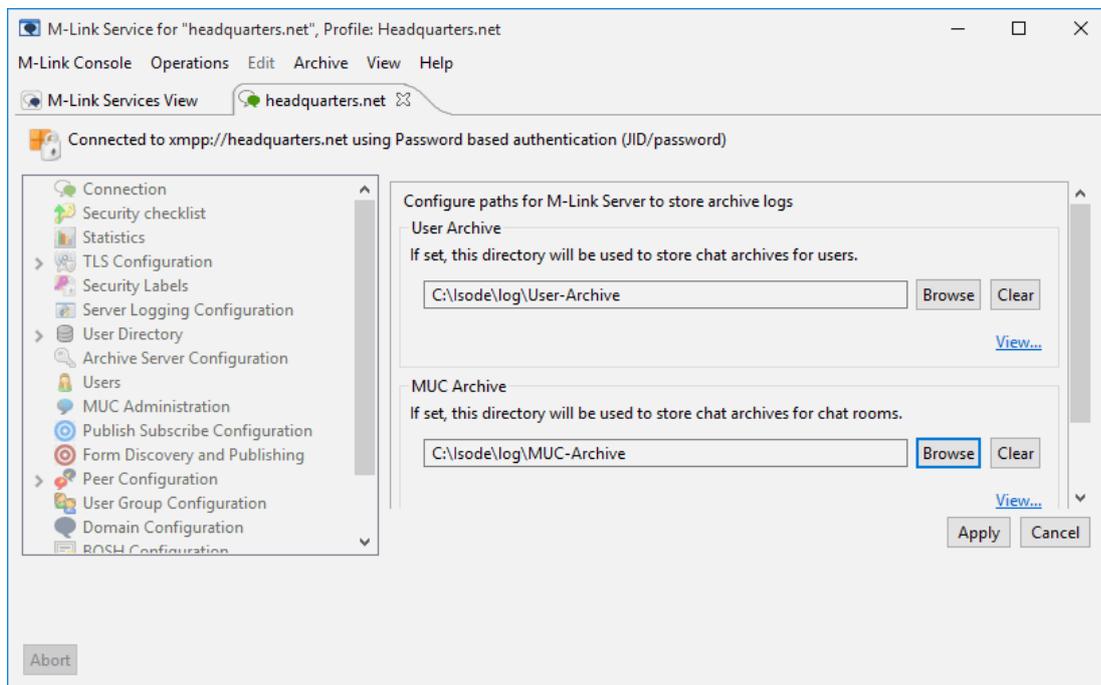


Although we're not going to add any special configuration options to the room at this stage, you can see what options are currently available for room configuration by highlighting the room and clicking on **[Configure Room]**.

## Setting 1:1 and Multi-User Chat Archive Locations

A common admin requirement is for archives to be kept of both 1:1 and MUC chat sessions. In this section

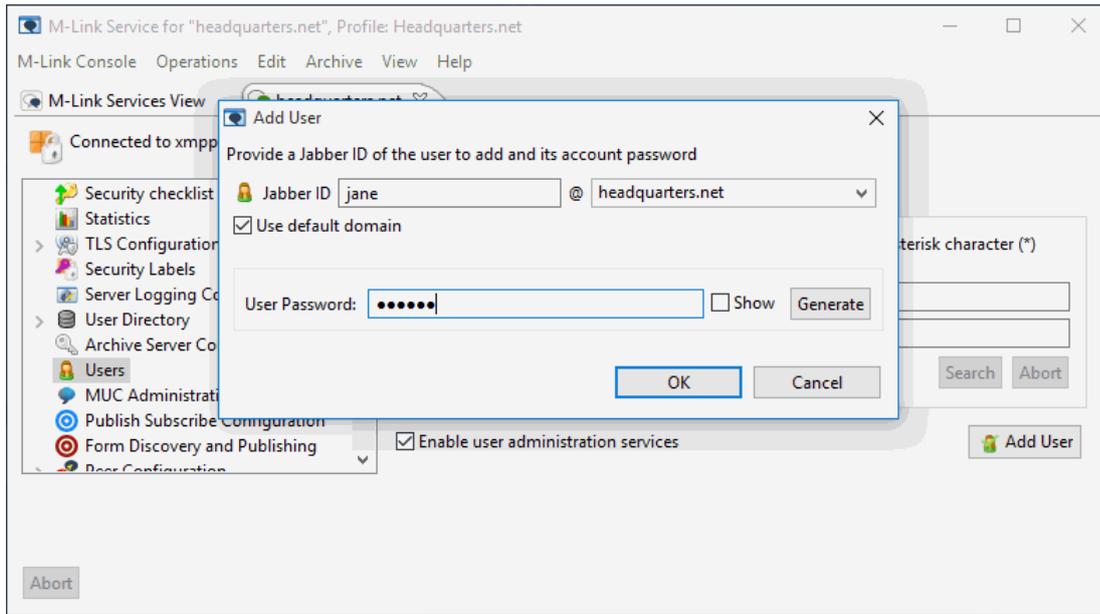
we'll set locations for storing those archives. Select the XMPP Logs option from the left-hand pane and set locations for User and MUC Archives using the fields provided on the right. Click on **[Apply]** to commit these locations.



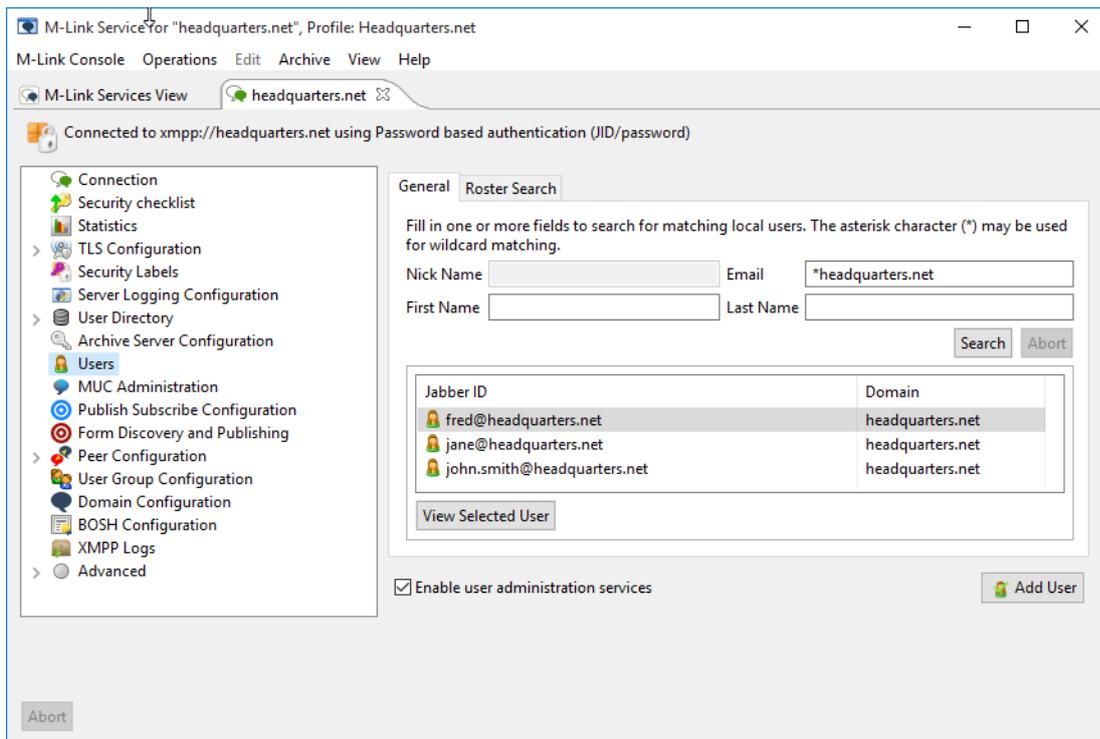
You'll need to switch back to the M-Link Services View tab and **stop** and **start** the service (from the Operations menu) to activate logging.

## Adding Users

We now have an XMPP service, running on one node with a single MUC domain. Within that MUC domain we have a single permanent MUC room. We do not currently have any users of the XMPP service. In many situations you'd connect to an existing Directory (such as Isode's M-Vault or Active Directory) for user information but here we're going to use MLC to create new user entries in the M-Vault directory we've already set up. Select **[Users]** in the left pane and click on **[Add User]**.



The minimum required information for each user is Jabber ID and password. Add the users "jane@headquarters.net" and "fred@headquarters.net" and make a note of the passwords you set.



## Testing with the 'Swift' XMPP Client

A number of free XMPP clients are available but for the purposes of this evaluation we're going to use the 'Swift' client. Instructions for obtaining and installing Swift for your platform can be found at [[www.isode.com/evaluation/swift/](http://www.isode.com/evaluation/swift/)].

### Installing and Using Swift

Install and run Swift. When starting Swift use the address and password details for "jane@headquarters.net" to log in.



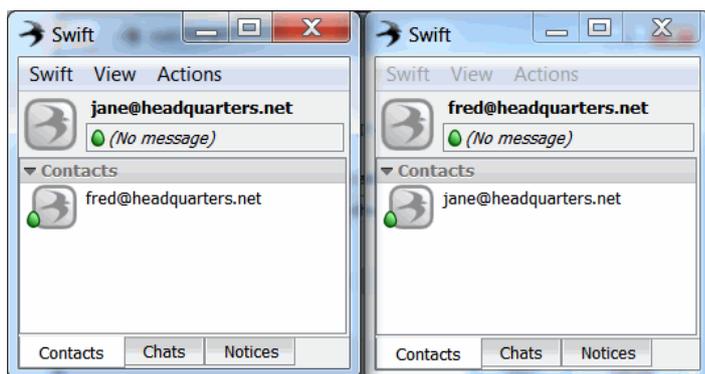
You can run multiple copies of the Swift client, so launch Swift again, this time logging in as "fred@headquarters.net". Once you've logged in as both users, you'll see that they have empty rosters. From either of these users, select [**Add Contact**] from the [**Action**] menu in Swift and fill in the JID of the other user.

#### Note

These instructions assume that you are either using Swift on the same machine as that which is running your server software, (& that it is therefore taking advantage of the Hosts file changes you made earlier to resolve the @headquarters.net address) or you are using SRV records within DNS to resolve the @headquarters.net address. If you are using Swift on a different machine and are not using SRV records, click on the Connection Options links under the Connect button to specify the IP address of the system hosting M-Link.

Click [**Next**] and give the contact a name (or select their JID as the name for your roster) and click Finish. We're not going to create any group contacts at this stage.

When the Jane Brown user receives and accepts the request, each will appear in the other's roster.

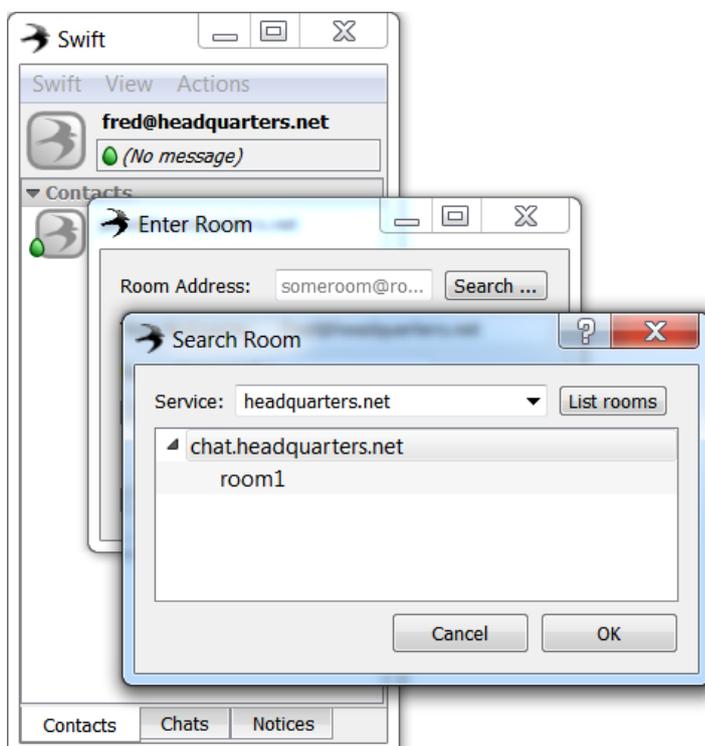


You can now engage in 1:1 chat between your two users.

#### Further Reading: Roster Prepopulation

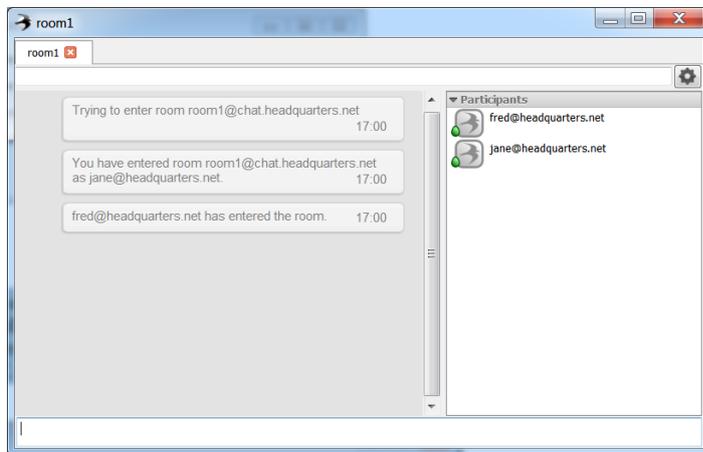
If you have a large group of users who require large or defined rosters of contacts, setting them up this way can be very time consuming. M-Link supports using group information from a directory, to support roster prepopulation and authorization. Groups can be based on SASL userids, on an LDAP search, or on an X.500 style group held either in the configuration or in the authentication directory. More information can be found in the M-Link Administration Guide (see the final section of this document for links).

Earlier we set up a persistent chat room using MLC. In order to enter that room select **[Enter Room...]** from the **[Actions]** menu and then click on the **[Search...]** button.



Select room1 and click **[OK]** to enter. In the screenshot below you can see the MUC room from

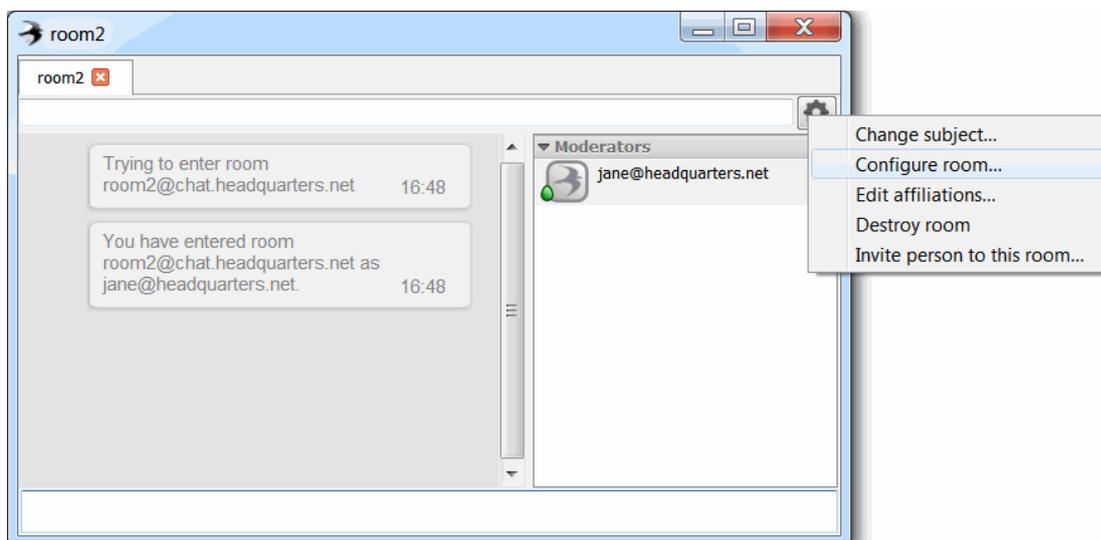
the perspective of "jane@headquarters.net" once both users have entered the room. You'll note that both are listed as 'Participants' in the room as the room was created (& would therefore be moderated by) "john.smith@headquarters.net", the admin user that MLC is logged in as.



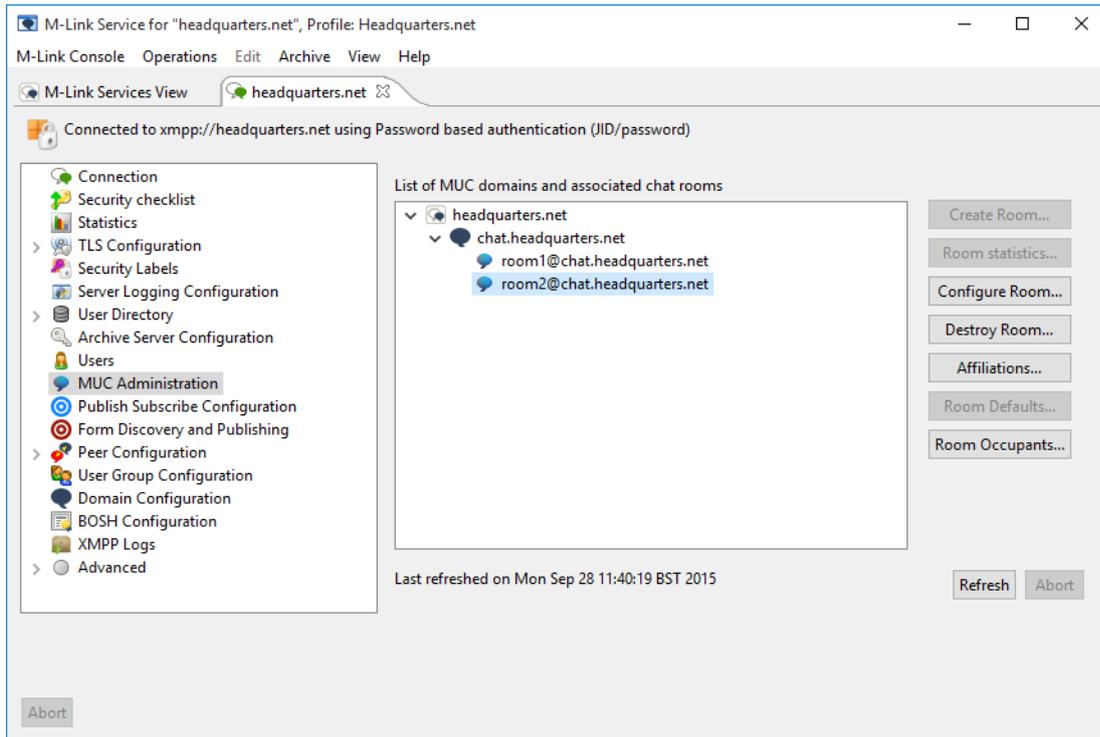
Your two users can create, as moderators, their own rooms within Swift (or many other XMPP clients) by selecting **[Enter Room...]** from the **[Actions]** menu and using the Room field to name the new MUC room. In the screenshot below we've created a new room called "room2@chat.headquarters.net".

Clicking on **[Enter Room]** will bring the creator into the room as a Moderator, with access to configuration options for that room. Rooms created in this way are ad-hoc chat rooms (that is, they will not persist once the last participant leaves or through a server restart).

As moderator, the creator of the room can configure the room so that it becomes permanent by accessing the **[Configure Room...]** menu option from the settings icon, as below. In the resulting XMPP form, the room can be made persistent.

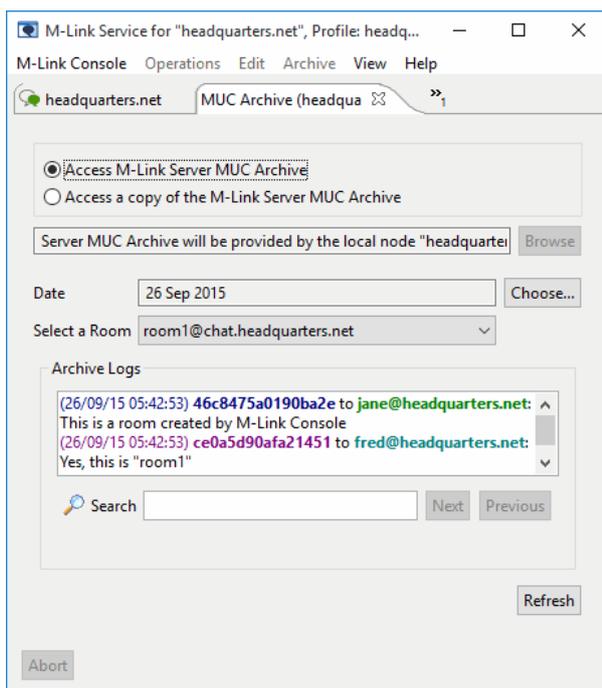


Switching back to the MUC Administration screen in MLC, you can see that this new room is now displayed (after clicking the **[Refresh]** button).



## Archive Browsing using M-Link Console

Earlier we set locations for storing logs of 1:1 and Multi-User Chat. MLC can be used to browse these archives. In MLC Choose 'XMPP Logs' (as you did to set up archive locations) but this time click on 'view' to bring up the search pop-up. MUC logs can be searched by a combination of Date and Room. 1:1 chat logs can searched by any combination of Date, User and Contact.

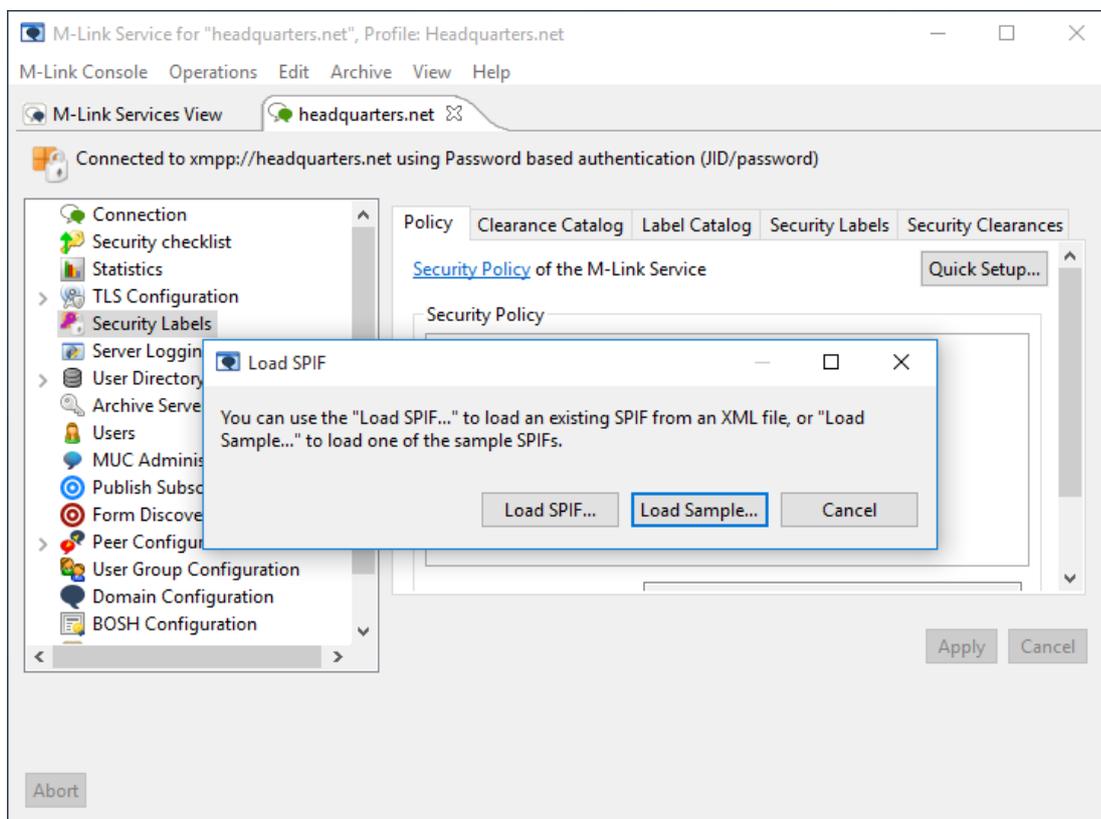


## Adding a Security Policy

This optional section shows how to add a security policy (together with label and clearance catalogs) to an M-Link service. The guide can be used in conjunction with existing security policies, sample policies shipped with the Isode product set or security policies created using Isode's SPIF Editor. For background information on security policy concept you should read the Isode whitepaper 'AccessControl using Security Labels and Security Clearances' [[www.isode.com/whitepapers/security-labelsclearance.html](http://www.isode.com/whitepapers/security-labelsclearance.html)]. The Security Policy needs to be added to both M-Link and to M-Vault (which holds authentication and user information).

### Adding the Policy to M-Link

Select the 'Security Labels' options from the left-hand pane and then click on the [Quick Setup] button from the Policy tab.



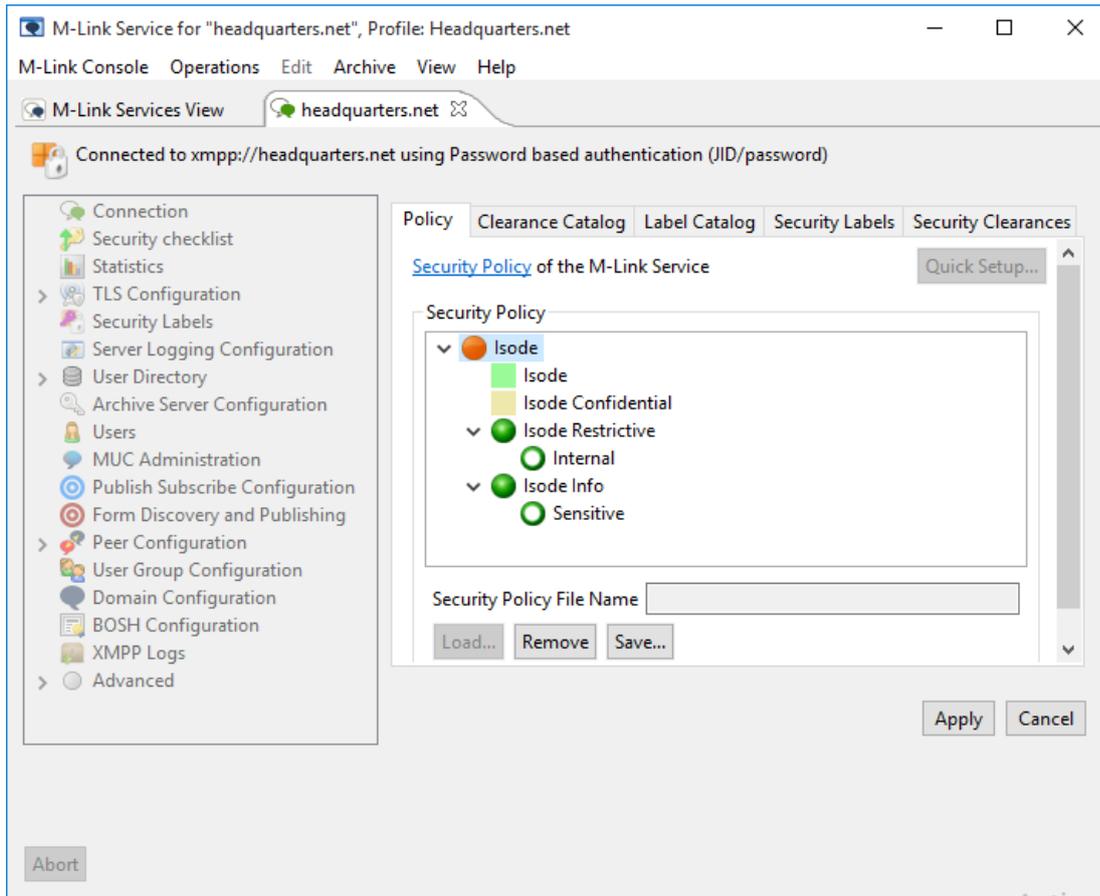
In the pop-up menu you'll be given option to:

1. Load SPIF: load an existing SPIF from an XML file
2. Load Sample: load one of the sample SPIFs shipped with the Isode products.

If you have created a SPIF using Isode's SPIF Editor or have an existing policy you can choose the first option but for the purposes of this guide you are going to load a sample SPIF so choose [**Load Sample**].

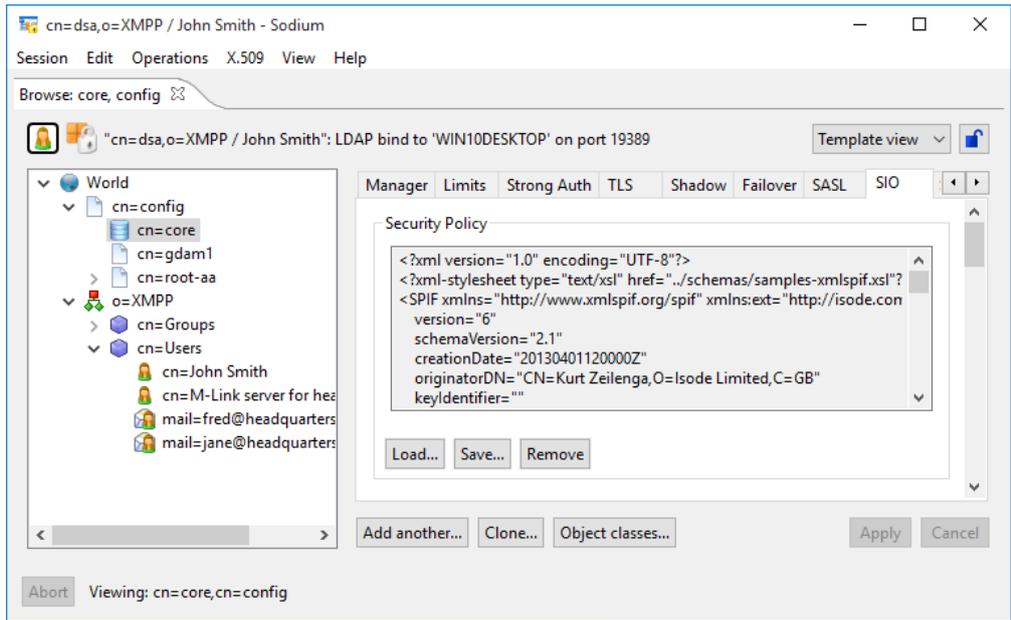
Choose the "Isode Security Policy" and click on [**Next**] through the Generated Label Catalog and Generated Clearance Catalog screen, clicking on [**Finish**] at the end. You can use these screens to edit labels and clearances (for more information on this please see the M-Link Administration Guide).

You'll now dropped back into the main MLC screen where you'll need to click on [**Apply**] to commit the changes.

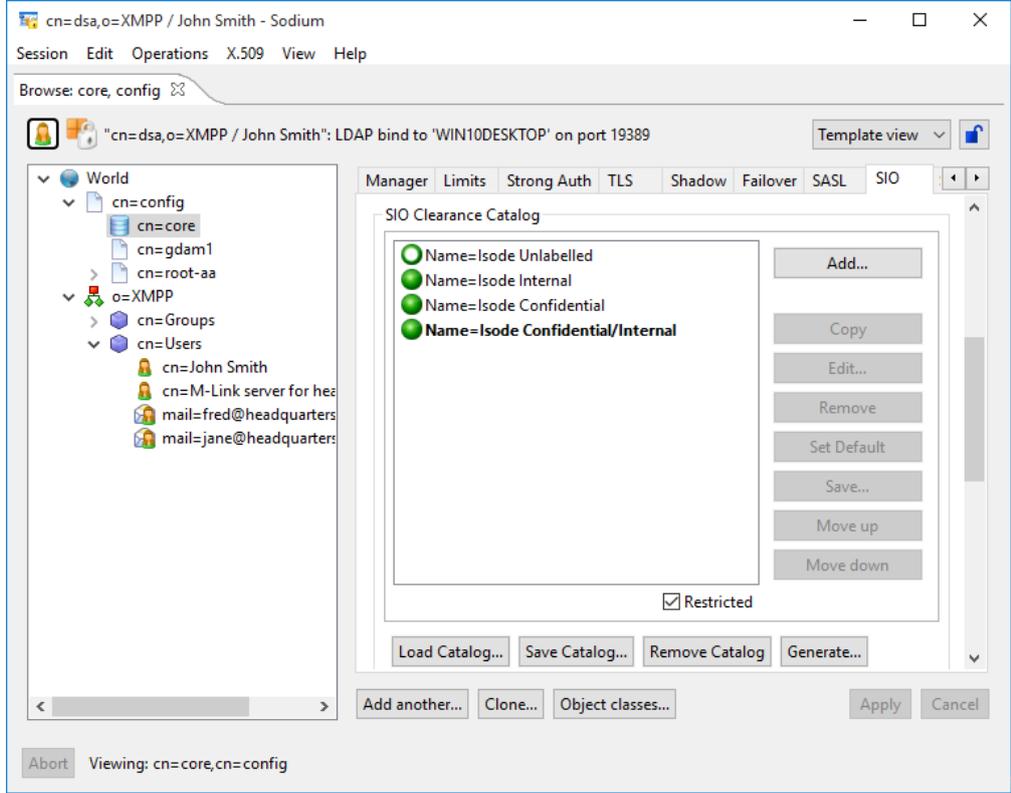


## Adding the Policy to M-Vault

Sodium is Isode GUI for management of data in Isode's M-Vault LDAP server. For general instructions on using Sodium, see the evaluation guide on directories. Launch Sodium, connect to your M-Vault server and expand the root of the directory tree to show and select "cn=core". Go to the SIO tab, and click on **[Load]** in the Security Policy section. Navigate to /ProgramFiles/Isode/share/security-policy/example-data/isode/ and load the "policy.xml" file.

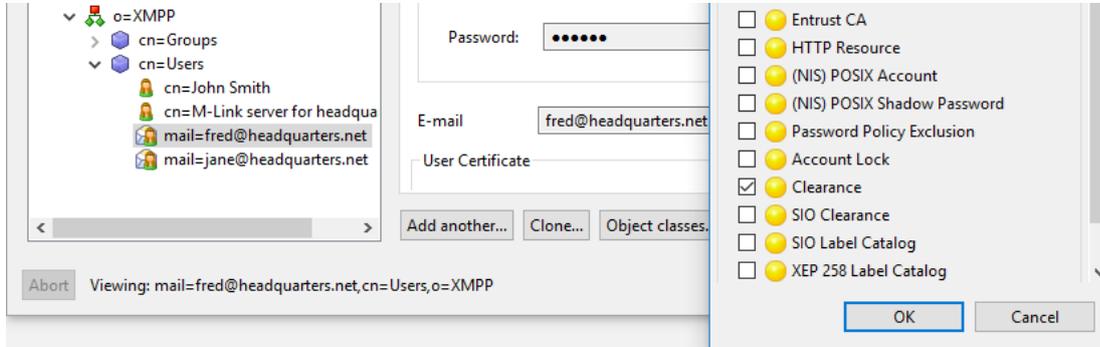


In the same tab, scroll down to the SIO Clearance catalog section, choose **[Load Catalog]** and from the same location select/load the "clearance\_catalog.xml" file. Now scroll down to the SIO label Catalog section, choose **[Load Catalog]** and from the same location select the "label\_catalog.xml" file. Return to the main Sodium screen and click on the **[Apply]** button to commit these changes. In the next screenshot we can see the SIO clearance catalog section of this tab after **[Apply]** has been clicked.

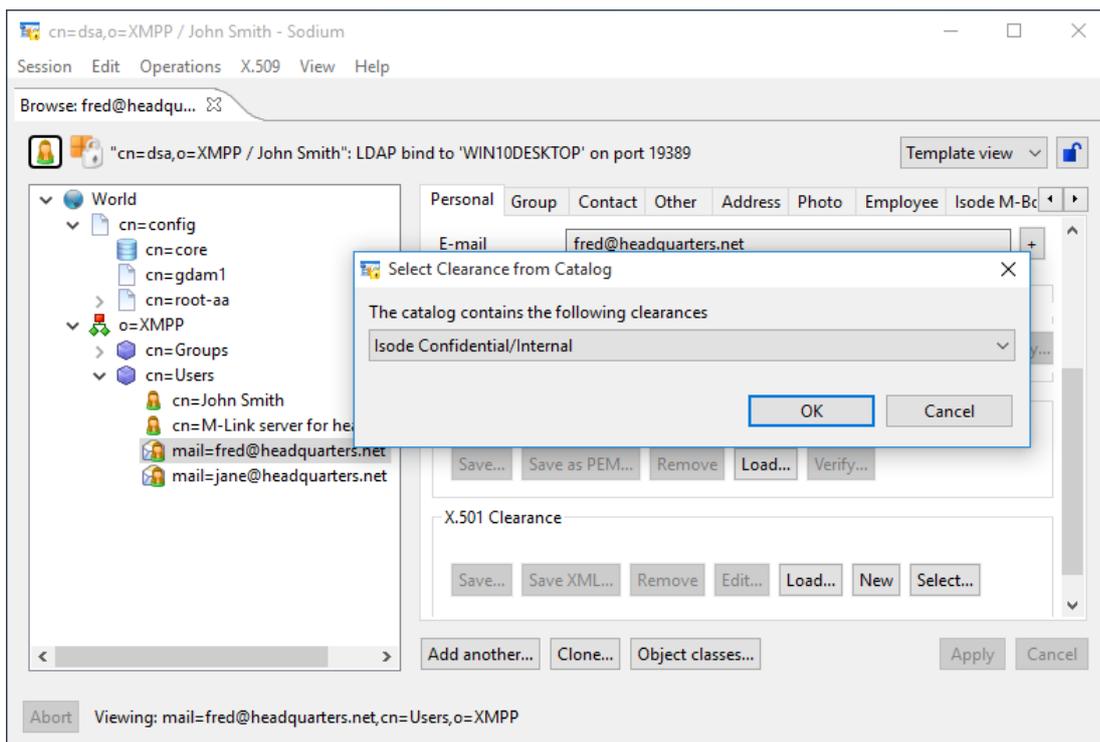


## Assigning Clearances to Users

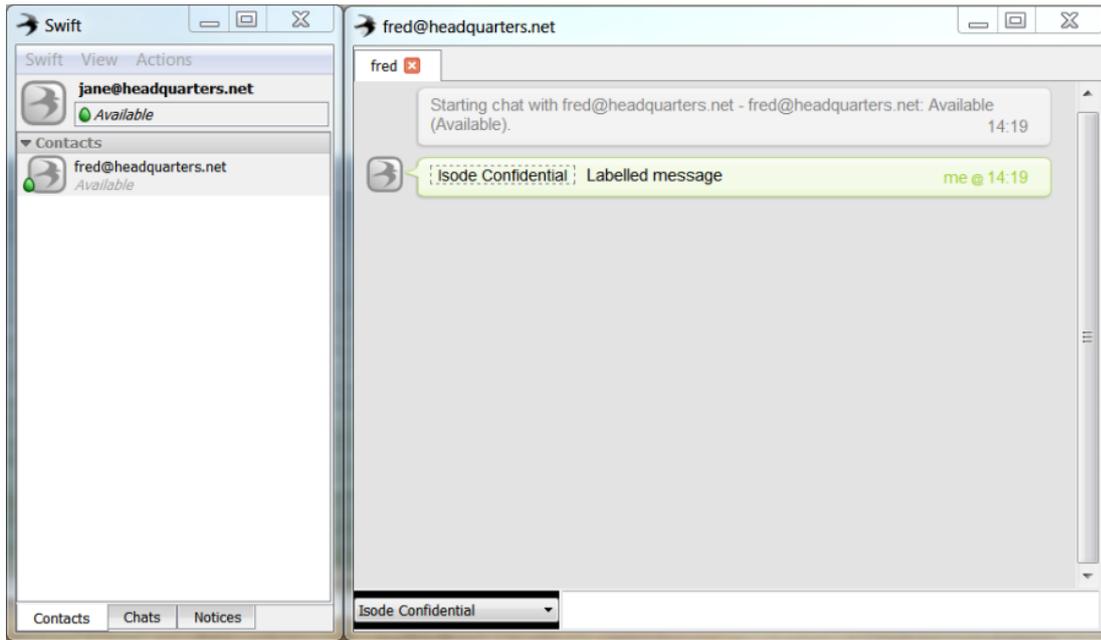
You now need to assign clearances to the users of the M-Link service. IN Sodium, expand the directory tree to reveal the user entries under cn=Users (fred and jane). Select each in turn and use the **[Object classes...]** button to add the "SIO Clearance" object class to each user.



On the "Personal" tab of each user, scroll down to the "X.501 Clearance" section, click on **[Select]** and from the pop-up choose and then apply a clearance for each user.



After restarting your M-Link service, labels up to and including the clearances selected will be available to the users of your service.



# Basic M-Link Troubleshooting

## M-Link shortcuts missing from Start Menu

- This is usually down to a Java incompatibility, if installing on a 64-bit Server, check the version of Java and make sure it is 64-bit and not 32-bit.
- Once you have the correct Java installed, go to add/remove programs, select M-Link and click repair. Follow wizard and repeat the same with each Isode product. Reboot server.
- If the shortcuts are still missing, uninstall Isode products and reinstall.

## Error when starting MLC

- If using M-Vault as a directory server, make sure DSA service has started.
- Check the the XMPP and WABAC services have started.
- Check Firewall
- Is the M-Link license valid and in date
- If TLS is enabled on the M-Link server, make sure a HGE license is in place.

## Connection Error in MLC (auth failure/DNS resolve failure)

- Check that the user has permissions to log into MLC
- Check the User Jid is correct
- Check the password is correct
- If using host files, make sure you have the M-Link server and IM domain within the host file.
- If using DNS make sure the correct SRV records are in place.

## What next/other resources

### Help us improve our Evaluation Guides

Producing evaluation guides that are easy to follow and that help evaluators get started with our products is important to us. Please help us improve this guide by emailing us at [customer-service@isode.com](mailto:customer-service@isode.com).

### Product Information

While following this guide you have installed M-Link (XMPP Server) and M-Vault (LDAP/X.500 Directory Server). For more information on these server products and the MLC Management tool, follow the links below:

- M-Link: [[www.isode.com/products/m-link.html](http://www.isode.com/products/m-link.html)]
- M-Vault: [[www.isode.com/products/m-vault-directory.html](http://www.isode.com/products/m-vault-directory.html)]
- M-Link Console: [[www.isode.com/products/m-link-management.html](http://www.isode.com/products/m-link-management.html)]

### Further Evaluations

Evaluations of other Isode products are available from [[www.isode.com/evaluate/index.html](http://www.isode.com/evaluate/index.html)].

Further XMPP evaluation guides, which follow on from this one are, "XMPP for Constrained Link Environments", "Form Discovery & Publishing" and "Using the SPIF Editor". Isode messaging products, including M-Link, have special functionality to optimize operation over constrained links (such as HF Radio and SatCom). By the end of these new evaluation guides you will have:

- Configured two M-Link servers on separate hosts to communicate using Isode's optimized server-to-server protocol over TCP and/or over STANAG 5066 (HF Radio).
- Learned how to filter traffic types over the link.
- Set up a Federated Multi-User Chat (FMUC) room.
- Configured an FDP Domain & upload sample form templates.
- Configured BOSH on the M-Link Server (for use with the FDP Web Client).
- Used both desktop and web clients to submit (as a publisher) and receive (as a subscriber) a CASREP form.
- Created 3 files with the SPIF Editor: label-catalog.xml, clearance-catalog.xml and policy.xml

### Documentation

This guide has covered only the basic functionality of Isode's M-Link server. To extend your system and explore the capabilities of M-Link further you should read the Administration Guide available from the Isode website in PDF format. The M-Link Administration Guide, together with all other Isode documentation is available from [[www.isode.com/support/docs.html](http://www.isode.com/support/docs.html)].

### Whitepapers

Isode regularly publishes whitepapers relevant to XMPP. All whitepapers can be searched from the whitepaper index page on the Isode website at [[www.isode.com/whitepapers/index.html](http://www.isode.com/whitepapers/index.html)].

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